

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2004/000042

International filing date (day/month/year)
08.01.2004

Priority date (day/month/year)
09.01.2003

International Patent Classification (IPC) or both national classification and IPC
F16H61/00, F16H37/08

Applicant
TOROTRAK (DEVELOPMENT) LTD

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/000042

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/000042

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	4,5,8-13
	No: Claims	1-3,6,7,14
Inventive step (IS)	Yes: Claims	8-13
	No: Claims	1-7,14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

D1: US-A-5 669 846;

D2: US-A-2002/086764; and

D3: US-A-2002/094904.

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 14 is not new in the sense of Article 33(2) PCT.

Document D1 discloses (the references in parentheses applying to this document): a continuously variable transmission (1) comprising a transmission input (3), a transmission output (5), a variator (11) which provides a continuously variable variator ratio, and gearing (fig.1a) constructed and arranged to couple the variator between the transmission input and the transmission output in either of a low regime and a high regime, so that the transmission output is drivable from the transmission input at a transmission ratio which is related to the variator ratio, the relationship between the variator ratio and the transmission ratio being different in the two regimes (fig.3), the gearing incorporating first hydraulically actuated clutch means (CL) for engaging and disengaging low regime and second hydraulically actuated clutch means (CH) for engaging and disengaging high regime and being such as to provide a synchronous ratio at which a change between low and high regimes at constant variator ratio produces no change in transmission ratio, and the transmission being provided with hydraulics (fig.5, 10, 14 and 15) incorporating a shift valve (601) which controls application of hydraulic pressures to the first and second clutch means, so that a change in state of the shift valve causes one of the clutch means to change from engaged to disengaged and the other of the clutch means to change from disengaged to engaged, thereby causing the transmission to change from one regime to the other.

Therefore the subject-matter of independent claim 1 is not new (Article 33(2) PCT). Similar objections for claim 1 are raised using D2 or D3 in lieu of D1.

The same reasoning applies to the subject-matter of independent claim 14, which

therefore is also considered not new.

3. Dependent claims 2-7 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty or inventive step (Articles 33(2) and 33(3) PCT), the reasons being as follows:

The additional features of dependent claims 2, 3, 6 and 7 are known from document D1 (see especially figures 14 and 15 in D1).

The additional feature of dependent claims 4 and 5 concerning the application of hydraulic pressures to the first and second clutch means is merely one of several straightforward constructional possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill, in order to solve the problem posed.

4. The combination of the features of dependent claim 8 is neither known from, nor rendered obvious by, the available prior art. The reasons are as follows:

In order to maintain continuity of transmission output torque upon regime change, the solution shown in the continuously variable transmission according to D1 cannot be applied in the case of a continuously variable transmission in which variator reaction torque is determined by a double-sided hydraulic actuator. The magnitude of the variator control pressures applied to the double-sided hydraulic actuator must indeed necessarily be modified upon regime change to avoid any perceptible change in output torque.

An independent claim should have been drafted to include these features, bearing in mind that the features known in combination in D1 should have been placed in the preamble of such a claim in accordance with Rule 6.3(b) PCT.

Claims 9-13 are dependent on claim 8 and as such also meet the requirements of the PCT with respect to novelty and inventive step (Articles 33(2) and 33(3) PCT).